What is Claimed is:

1. A Group III nitride semiconductor device, comprising:

a monocrystalline silicon substrate;

a stress-absorbing layer located on the silicon substrate, having:

a stress-absorbing layer with an amorphous silicon nitride layer deposited on the silicon substrate;

an aluminum interlayer deposited on the amorphous silicon nitride layer;

an amorphous aluminum nitride pre-layer deposited on the aluminum interlayer; and

a polycrystalline Group III nitride layer containing aluminum, deposited on the amorphous aluminum nitride pre-layer; and

a monocrystalline Group III nitride semiconductor device laminar structure, deposited on the polycrystalline Group III nitride layer containing aluminum.

2. The Group III nitride semiconductor device according to Claim 1, wherein the monocrystalline silicon substrate is a low resistant silicon substrate.

3. The Group III nitride semiconductor device according to Claim 1, wherein the amorphous silicon nitride layer is made by a nitridation process.

4. The Group III nitride semiconductor device according to Claim 1, wherein the amorphous silicon nitride layer has a thickness of about 3Å-500Å.

5. The Group III nitride semiconductor device according to Claim 1, wherein the, amorphous silicon nitride layer has a thickness of about 10Å-30Å.

6. The Group III nitride semiconductor device according to Claim 1,

wherein the aluminum interlayer has a thickness of about 5Å-20Å.

7. The Group III nitride semiconductor device according to Claim 1, wherein the aluminum interlayer and the amorphous silicon nitride layer are formed with an aluminum-nitrogen bond therebetween.

8. The Group III nitride semiconductor device according to Claim 1, wherein the amorphous aluminum nitride pre-layer has a thickness of about 5Å-500Å.

9. The Group III nitride semiconductor device according to Claim 1, wherein the amorphous aluminum nitride pre-layer rearranges with the aluminum interlayer during formation to alleviate stress between the amorphous aluminum nitride pre-layer and the silicon substrate.

10. The Group III nitride semiconductor device according to Claim 1, wherein the polycrystalline Group III nitride layer containing aluminum serves to function as a buffer layer of the monocrystalline Group III nitride layer.

11. The Group III nitride semiconductor device according to Claim 1, wherein the semiconductor device is selected from one of the group consisting of: light-emitting diodes, laser diodes, photodiodes, miniature electronic device structures and miniature electro-mechanical device structures.

12. The Group III nitride semiconductor device according to Claim 1, wherein the monocrystalline Group III nitride semiconductor device laminar structure further comprises:

an active layer;

a first Group III nitride conductive layer, located between the active layer and the stress-absorbing layer; and

a second Group III nitride conductive layer, located on the active layer, having an electrical conductivity different from an electrical conductivity of the Group III nitride conductive layer.

13. The Group III nitride semiconductor device according to Claim 12,

the monocrystalline Group III nitride semiconductor device laminar structure further comprises a first electrode, located on the second Group III nitride conductive layer.

14. The Group III nitride semiconductor device according to Claim 13, wherein the first electrode is made by etching part of the Group III nitride conductive layer.

15. The Group III nitride semiconductor device according to Claim 12, wherein the monocrystalline Group III nitride semiconductor device laminar structure further comprises a first electrode, located beneath the silicon substrate.

16. The Group III nitride semiconductor device according to Claim 12, wherein the monocrystalline Group III nitride semiconductor device laminar structure further comprises a transparent electrode, located on the first Group III nitride conductive layer.

17. The Group III nitride semiconductor device according to Claim 16, wherein the monocrystalline Group III nitride semiconductor device laminar structure further comprises a first electrode, located on the transparent electrode.

18. The Group III nitride semiconductor device according to Claim 17, wherein the electrode is made of a material selected from one of the group consisting of: Ti/Al and Ni/Au.

19. The Group III nitride semiconductor device according to Claim 12, wherein the active layer is of a structure selected from one of the group consisting of: homostructure, heterostructure, double-heterostructure, single-quantum well and multiple-quantum well.

20. A method of manufacturing a Group III nitride semiconductor device, comprising the steps of:

depositing a monocrystalline silicon substrate;

depositing an amorphous silicon nitride layer on the silicon substrate;

depositing an aluminum interlayer on the amorphous silicon nitride layer;

depositing an amorphous aluminum nitride pre-layer on the aluminum interlayer;

depositing a polycrystalline Group III nitride layer containing aluminum on the amorphous aluminum nitride pre-layer; and

depositing a monocrystalline Group III nitride semiconductor device laminar structure on the polycrystalline Group III nitride layer containing aluminum.

21. The method of manufacturing a Group III nitride semiconductor device according to Claim 20, wherein the monocrystalline silicon substrate is a low resistant silicon substrate.

22. The method of manufacturing a Group III nitride semiconductor device according to Claim 20, wherein the amorphous silicon nitride layer is made by a nitridation process.

23. The method of manufacturing a Group III nitride semiconductor device according to Claim 20, wherein the amorphous silicon nitride layer has a thickness of about 3Å-500Å.

24. The method of manufacturing a Group III nitride semiconductor device according to Claim 20, wherein the, amorphous silicon nitride layer has a thickness of about 10Å-30Å.

25. The method of manufacturing a Group III nitride semiconductor device according to Claim 20, wherein the aluminum interlayer has a thickness of about 5Å-20Å.

26. The method of manufacturing a Group III nitride semiconductor device according to Claim 20, wherein the aluminum interlayer and the amorphous silicon nitride layer are formed with an aluminum-nitrogen bond therebetween.

27. The method of manufacturing a Group III nitride semiconductor device according to Claim 20, wherein the amorphous aluminum

nitride pre-layer has a thickness of about 5Å-500Å.

28. The method of manufacturing a Group III nitride semiconductor device according to Claim 20, wherein the amorphous aluminum nitride pre-layer rearranges with the aluminum interlayer during formation to alleviate stress between the amorphous aluminum nitride pre-layer and the silicon substrate.

29. The method of manufacturing a Group III nitride semiconductor device according to Claim 20, wherein the polycrystalline Group III nitride layer containing aluminum serves to function as a buffer layer of the monocrystalline Group III nitride layer.

30. The method of manufacturing a Group III nitride semiconductor device according to Claim 20, wherein the semiconductor device is selected from one of the group consisting of: light-emitting diodes, laser diodes, photodiodes, miniature electronic device structures and miniature electro-mechanical device structures.

31. The method of manufacturing a Group III nitride semiconductor device according to Claim 20, wherein the monocrystalline Group III nitride semiconductor device laminar structure is formed by the steps of:

depositing an active layer;

depositing a first Group III nitride conductive layer located between the active layer and the stress-absorbing layer; and

depositing a second Group III nitride conductive layer located on the active layer and having an electrical conductivity different from an electrical conductivity of the Group III nitride conductive layer.

32. The method of manufacturing a Group III nitride semiconductor device according to Claim 31, wherein the step of depositing the monocrystalline Group III nitride semiconductor device laminar structure further comprises the step of: depositing a first electrode on the second Group III nitride conductive layer.

33. The method of manufacturing a Group III nitride semiconductor

device according to Claim 32, wherein the first electrode is made by etching part of the Group III nitride conductive layer.

34. The method of manufacturing a Group III nitride semiconductor device according to Claim 31, wherein the step of depositing the monocrystalline Group III nitride semiconductor device laminar structure further comprises the step of: depositing a first electrode beneath the silicon substrate.

35. The method of manufacturing a Group III nitride semiconductor device according to Claim 31, wherein the step of depositing the monocrystalline Group III nitride semiconductor device laminar structure further comprises the step of: depositing a transparent electrode on the first Group III nitride conductive layer.

36. The method of manufacturing a Group III nitride semiconductor device according to Claim 35, wherein the step of depositing the monocrystalline Group III nitride semiconductor device laminar structure further comprises the step of: depositing a first electrode on the transparent electrode.

37. The method of manufacturing a Group III nitride semiconductor device according to Claim 36, wherein the electrode is made of a material selected from one of the group consisting of: Ti/Al and Ni/Au.

38. The method of manufacturing a Group III nitride semiconductor device according to Claim 31, wherein the active layer is of a structure selected from one of the group consisting of: homostructure, heterostructure, double-heterostructure, single-quantum well and multiple-quantum well.